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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/991,956	11/26/2001	Yong Sung Ham	8734.021.00-US	5243

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EXAMINER	
SHANKAR, VIJAY	

ART UNIT	PAPER NUMBER
2673	

DATE MAILED: 02/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/991,956	HAM, YONG SUNG	
	Examiner	Art Unit	
	VIJAY SHANKAR	2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,6-8,11,12 and 15* is/are rejected.

7)☒ Claim(s) *4,5,9,10,13 and 14* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Election/Restrictions

2. Applicant's election with traverse of Group I in the reply filed on 8/4/2005 is acknowledged. The traversal is on the ground(s) that examiner did not say whether any claims are generic claims. This is found persuasive because there are generic claims and the restrictions is withdrawn and all Claims 1-15 will be examined.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3, 6-8, 11-12, 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Tanaka et al (6,700,559 B1).

Regarding Claim 1, Tanaka et al teaches the method of driving a liquid crystal display, comprising: setting at least two modulated data; deriving a plurality of modulated data bands including the at least two modulated data centering a gray scale that is approximate (Col.5, line 27- Col.6, line 22) to a gray scale value of source data (Figures 1,4; Column 1, line 47- Col.2, line 65; Col.4, line 39- Col.5, line 56) ; and carrying out first and second approximations in two directions perpendicular to each other within the modulated data bands to derive unregistered modulated data positioned between the modulated data, thereby modulating the source data (Figures 8-10; Col.9, line 47- Col.10, line 41; Figures 14-16; Col.12, line 45- Col.13, line 32).

Regarding Claims 2-3, 7-8, 12, Tanaka et al teaches the method and the apparatus further comprising: dividing the source data into most significant bits and least significant bits; and delaying each of the most significant bits and the least significant bits for a frame period; and comparing the most significant bits of a current frame with those of the delayed frame within a look-up table registered with the modulated data to derive the modulated data bands in accordance with the compared result; and the driving apparatus further comprising a single frame memory delaying both most significant bit of the source data and least most significant bit of the source data. (Figures 1,4; Column 1, line 47- Col.2, line 65; Col.4, line 54-25; Col.6, line 6-30).

Regarding Claim 6, Tanaka et al teaches the driving apparatus for driving a liquid crystal display, comprising a look-up table having a plurality of registered modulated data and deriving a modulated data band including one modulated data having a gray scale approximately (Col.5, line 27- Col.6, line 22) corresponding to a gray scale value of source data and other modulated data adjacent to the one modulated data in a horizontal and vertical directions (Figures 8-9, 14-16) within the look-up table (Figures 1,4; Column 1, line 47- Col.2, line 65; Col.4, line 39- Col.5, line 56); and a modulator approximating in the horizontal and vertical directions (Figures 8-9, 14-16) within the modulated data band to derive an approximate modulated data not registered in the look-up table, thereby modulating the source data using the approximate modulated data. (Figures 8-10; Col.9, line 47- Col.10, line 41; Figures 14-16; Col.12, line 45- Col.13, line 32).

Regarding Claim 11, Tanaka et al teaches the driving apparatus further comprising: a data driver applying data modulated by using the modulator to the liquid crystal display; a gate driver applying a scanning signal to the liquid crystal display; and a timing controller applying the source data to the modulator and controlling the data driver and the gate driver. (Figures 8-11; Column 9, line 47- Col.11, line 9).

Regarding Claim 15, Tanaka et al teaches the liquid crystal display, comprising: a liquid crystal display panel displaying images; a look-up table having a plurality of registered modulated data and deriving a modulated data band including one modulated data having a gray scale approximately (Col.5, line 27- Col.6, line 22) corresponding to a gray scale value of source data and other modulated data adjacent to the one modulated data in a horizontal and vertical direction (Figures 8-9, 14-16) within the look-up table (Figures 1,4; Column 1, line 47- Col.2, line 65; Col.4, line 39- Col.5, line 56); and a modulator approximating in the horizontal and vertical directions (Figures 8-9, 14-16) within the modulated data band to derive an approximate modulated data not registered in the look-up table, thereby modulating the source data using the approximated modulated data. (Figures 8-10; Col.9, line 47- Col.10, line 41; Figures 14-16; Col.12, line 45- Col.13, line 32).

Allowable Subject Matter

5. Claims 4-5, 9-10, 13-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is an examiner's statement of reasons for allowance: The prior art fails to teach the method wherein the carrying out first and second approximations includes: carrying out the first approximation using current least significant bits along a horizontal axis within the modulated data bands to derive two first approximate values existing on the horizontal axis; and carrying out the second approximation using previous least significant bits on a line between the two first approximate values to

derive the unregistered modulated data as mentioned in Claim 4 .

The prior art fails to teach the method wherein the carrying out first and second approximations includes: carrying out the first approximation using previous least significant bits along a vertical axis within the modulated data bands to derive two first approximate values existing on the vertical axis; and carrying out the second approximation using current least significant bits on a line between the two first approximate values to derive the unregistered modulated data as mentioned in Claim 5.

The prior art fails to teach the driving apparatus wherein the modulator includes: a first approximation processor carrying out a first approximation using current least significant bits along a horizontal axis within the modulated data bands to derive two first approximate values existing on the horizontal axis; and a second approximation processor carrying out a second approximation using previous least significant bits on a line between the two first approximate values to derive the unregistered modulated data as mentioned in Claim 9 .

The prior art fails to teach the driving apparatus wherein the modulator includes: a first approximation processor carrying out a first approximation using previous least significant bits along a vertical axis within the modulated data bands to derive two first approximate values existing on the vertical axis; and a second approximation processor

carrying out a second approximation using current least significant bits on a line between the two first approximate values to derive the unregistered modulated data as mentioned in Claim 10.

The prior art fails to teach the driving apparatus wherein the modulator includes a single approximation processor carrying out a first approximation using current least significant bits along a horizontal axis within the modulated data bands to derive two first approximate values existing on the horizontal axis, and a second approximation using previous least significant bits on a line between the two first approximate values to derive the unregistered modulated data as mentioned in Claim 13 .

The prior art fails to teach the driving apparatus wherein the modulator includes: a first approximation processor carrying out a first approximation using previous least significant bits along a vertical axis within the modulated data bands to derive two first approximate values existing on the vertical axis; and a second approximation processor carrying out a second approximation using current least significant bits on a line between the two first approximate values to derive the unregistered modulated data as mentioned in Claim 14 .

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

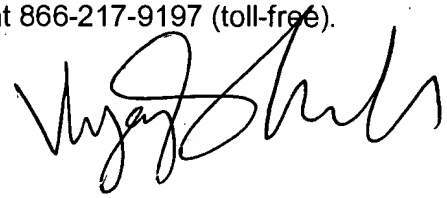
Response to Arguments

7. Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VIJAY SHANKAR whose telephone number is (571) 272-7682. The examiner can normally be reached on M-F 7:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, BIPIN SHALWALA can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



VIJAY SHANKAR
Primary Examiner
Art Unit 2673

VS